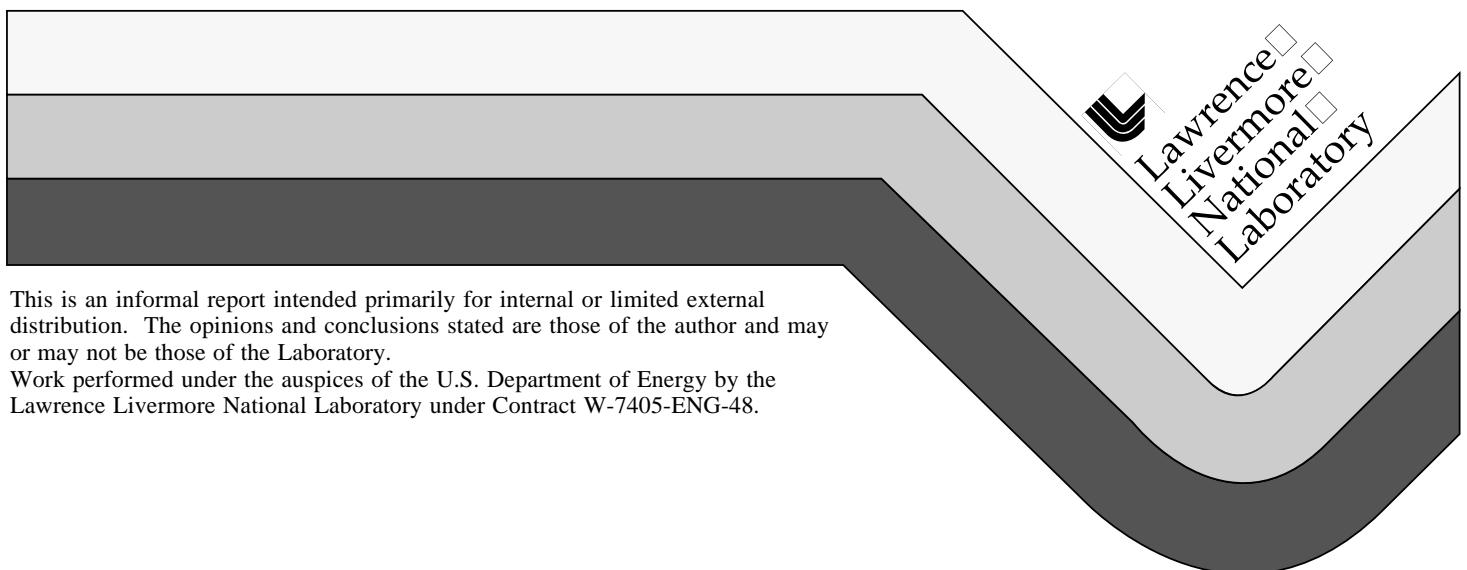


Radiological Conditions at Naen, Yugui, Lomiulal, Kabelle and Mellu Islands in the Northern Half of Rongelap Atoll

William L Robison
Cynthia L. Conrado

March 1996



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and Mellu Islands in the Northern Half of Rongelap Atoll

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Report to DOE Environment, Safety, and Health
for Dr. Harry Pettengill, March 1992

March, 1996

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INTRODUCTORY COMMENTS

The data presented in the following tables is the total available for each northern island; they include both the data from the 1978 Northern Marshall Island Radiological Survey (NMIRS) and trips to Rongelap Atoll from 1986 through 1989.

In one table we present the number of vegetation samples collected in the 1978 NMIRS and from 1986 through 1989. Again the majority of the ^{137}Cs data is from the 1986-1989 trips. We have not made additional analyses of $^{239+240}\text{Pu}$, ^{241}Am and ^{90}Sr because the concentrations are very low and these radionuclides contribute less than 5% of an already very small dose.

In another table we show the number of soil samples collected at each island in 1978 and the number collected since 1986. Most of the data are from 1986 through 1989. The major exception is ^{90}Sr where all of the data are from the 1978 NMIRS. We have done some additional Pu analyses of surface soils (0-5cm depth) in the northern islands. A significant amount of new data for ^{137}Cs and ^{241}Am have been generated from the samples collected from 1986 through 1989.

The data are presented in the form of summary tables, graphics, detailed appendices and aerial photographs of the islands with the sample locations marked. The identified sample locations from the 1978 NMIRS will be added later.

Table 1. The number of food crops collected at the northern islands at Rongelap Atoll and the mean and median ^{137}Cs concentrations.

Island Name	Island Code	Number of Samples			$\text{Cs-137 pCi/g wet wt.}$	
		Total	1978 NMIRS	1986-1989	median	mean
Drinking Coconut Meat						
Naen	01f	8	2	6	4.2	6.7
Lomiulal	07f	1	1	0	9.9	9.9
Kabelle	13f	29	1	28	1.9	2.2
Mellu	23f	1	0	1	3.6	3.6
Drinking Coconut Juice						
Naen	01f	6	0	6	1.5	3.3
Lomiulal	07f	1	1	0	1.4	1.4
Kabelle	13f	28	1	27	0.86	1.0
Mellu	23f	1	0	1	2.7	2.7
Copra Meat						
Naen	01f	5	2	3	7.7	7.5
Yugui	05f	6	0	6	12	12
Lomiulal	07f	8	2	6	11	12
Kabelle	13f	23	2	21	3.3	4.4
Mellu	23f	12	3	9	2.8	4.0
Copra Juice						
Naen	01f	5	2	3	3.2	5.8
Yugui	05f	6	0	6	10	8.6
Lomiulal	07f	8	2	6	7.2	7.3
Kabelle	13f	22	2	20	2.4	2.5
Mellu	23f	11	2	9	2.1	3.1
<i>Pandanus</i>						
Naen	01f	4	3	1	5.7	6.1
Yugui	05f	6	2	4	8.2	8.3
Kabelle	13f	2	0	2	7.3	7.3
Mellu	23f	8	4	4	3.4	4.2
Tacca Meat						
Yugui	05f	2	0	2	10	10
Lomiulal	07f	1	1	0	1.3	1.3
Mellu	23f	2	1	1	2.4	2.4

NOTE: Specific activity is decay corrected to 1994.

Table 2. The number of indicator species collected at the northern islands at Rongelap Atoll and the mean and median ^{137}Cs concentrations.

Island Name	Island Code	Number of Samples			$\text{Cs-137 pCi/g wet wt.}$	
		Total	1978 NMIRS	1986-1989	median	mean
<i>Morinda</i> Fruit						
Kabelle	13f	1	1	0	1.2	1.2
<i>Guettardia</i> Leaves						
Kabelle	13f	7	0	7	0.45	0.43
<i>Messerschmidia</i> Leaves						
Naen	01f	2	2	0	8.7	8.7
Kabelle	13f	11	0	11	1.2	1.3
<i>Pisonia</i> Leaves						
Naen	01f	1	0	1	15	15
Yugui	05f	1	0	1	15	15
Lomiulal	07f	5	1	4	8.9	8.3
Kabelle	13f	4	0	4	4.8	4.6
<i>Pandanus</i> Leaves						
Yugui	05f	1	1	0	12	12
Lomiulal	07f	1	1	0	8.3	8.3
Kabelle	13f	1	0	1	2.4	2.4
<i>Scaevola</i> Leaves						
Naen	01f	6	1	5	1.6	1.8
Yugui	05f	5	0	5	2.0	2.2
Lomiulal	07f	9	0	9	1.3	1.6
Kabelle	13f	16	0	16	1.0	1.6
<i>Coconut</i> Fronds						
Kabelle	13f	8	0	8	3.0	3.0

NOTE: Specific activity decay corrected to 1994.

Table 3. The number of animal samples collected at the northern islands at Rongelap Atoll and the mean and median ^{137}Cs concentrations.

Island Name	Island Code	Number of Samples			$\text{Cs-137 pCi/g wet wt.}$	
		Total	1978 NMIRS	1986-1989	median	mean
Coconut Crab Muscle						
Naen	01f	1	0	1	14	14
Yugui	05f	1	0	1	20	20
Loniulal	07f	2	1	1	10	10
Kabelle	13f	10	0	10	4.0	5.2
Mellu	23f	3	1	2	3.5	3.9
Coconut Crab Hepatopancreas						
Naen	01f	1	0	1	14	14
Yugui	05f	1	0	1	17	17
Loniulal	07f	1	0	1	7.0	7.0
Kabelle	13f	9	0	9	5.7	7.6
Mellu	23f	2	0	2	3.2	3.2

NOTE: Specific activity decay corrected to 1994.

Table 4. The number of soil samples collected at the northern islands at Rongelap Atoll.

Island Name	Island Code	Number of Soil Samples for Cs-137 and Am-241			
		1978		1986-1989	
		Profiles	0-5 cm.	Profiles	0-5 cm.
Naen	01f	7	6	10	10
Yugui	05f	1	1	10	10
Lomiulal	07f	4	4	10	10
Kabelle	13f	5	5	12	29
Mellu	23f	4	4	11	11
Island Name	Island Code	Number of Soil Samples for Pu-239+240			
		1978		1986-1989	
		Profiles	0-5 cm.	Profiles	0-5 cm.
Naen	01f	7	7	0	9
Yugui	05f	1	1	0	10
Lomiulal	07f	4	4	0	10
Kabelle	13f	5	5	0	0
Mellu	23f	4	4	0	11
Island Name	Island Code	Number of Soil Samples for Sr-90			
		1978		1986-1989	
		Profiles	0-5 cm.	Profiles	0-5 cm.
Naen	01f	7	7	0	0
Yugui	05f	1	1	0	0
Lomiulal	07f	4	4	0	0
Kabelle	13f	5	5	0	0
Mellu	23f	4	4	0	0

Table 5. Average ^{137}Cs , ^{90}Sr , $^{239+240}\text{Pu}$, and ^{241}Am soil concentrations in pCi/g dry weight for soil profiles taken on Naen Island (F1).

Soil depth (cm)	^{137}Cs		^{90}Sr		$^{239+240}\text{Pu}$		^{241}Am	
	Median	Mean	Median	Mean	Median	Mean	Median	Mean
00-05	83	120	110	110	49	43	26	29
05-10	44	46	77	79	18	21	8.7	8.5
10-15	21	23	41	51	8.2	11	3.3	3.3
15-25	7.7	7.1	10	15	1.4	2.2	0.63	1.1
25-40	1.5	1.9	6.9	9.7	0.14	0.69	0.12	0.31
40-60	1.5	1.7	3.6	3.7	0.18	0.20	0.069	0.11
00-05	83	120	110	110	49	43	26	29
00-10	69	84	87	93	23	25	21	19
00-15	53	64	70	79	18	20	12	13
00-25	36	41	47	53	11	13	6.8	7.1
00-40	24	26	32	37	6.8	8.4	4.3	4.6
00-60	13	14	23	26	4.5	5.7	2.4	2.5

NOTE: Specific activity decay corrected to 1994.

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Table 6. Average ^{137}Cs , ^{90}Sr , $^{239+240}\text{Pu}$, and ^{241}Am soil concentrations in pCi/g dry weight for soil profiles taken on Yugui Island (F5).

Soil depth (cm)	^{137}Cs		^{90}Sr		$^{239+240}\text{Pu}$		^{241}Am	
	Median	Mean	Median	Mean	Median	Mean	Median	Mean
00-05	170	170	32	32	55	58	48	53
05-10	73	86	20	20	2.3	2.3	4.3	16
10-15	32	28	11	11	0.66	0.66	0.89	1.7
15-25	8.8	9.7	3.6	3.6	0.23	0.23	0.32	0.40
25-40	2.8	3.2	2.7	2.7	0.12	0.12	0.054	0.054
40-60	0.53	0.53	0.21	0.21	0.032	0.032	0.0	0.0
00-05	170	170	32	32	55	58	48	53
00-10	140	130	26	26	8.6	8.6	27	34
00-15	100	95	21	21	5.9	5.9	19	21
00-25	65	61	14	14	3.7	3.7	18	18
00-40	42	39	9.9	9.9	2.3	2.3	1.1	1.1
00-60	14	14	6.7	6.7	1.6	1.6	0.0	0.0

NOTE: Specific activity decay corrected to 1994.

Table 7. Average ^{137}Cs , ^{90}Sr , $^{239+240}\text{Pu}$, and ^{241}Am soil concentrations in pCi/g dry weight for soil profiles taken on Lomiulal Island (F7).

Soil depth (cm)	^{137}Cs		^{90}Sr		$^{239+240}\text{Pu}$		^{241}Am	
	Median	Mean	Median	Mean	Median	Mean	Median	Mean
00-05	53	81	51	66	35	34	22	22
05-10	37	35	49	46	16	13	4.9	6.3
10-15	15	18	26	25	4.4	6.3	2.3	3.0
15-25	6.3	9.4	12	16	1.1	2.3	0.37	0.84
25-40	1.5	3.2	6.3	7.8	0.41	0.41	0.19	0.18
40-60	0.39	1.1	2.6	3.4	0.13	0.23	0.18	0.18
00-05	53	81	51	66	35	34	22	22
00-10	47	58	45	56	16	16	13	14
00-15	39	44	37	46	13	13	8.1	9.3
00-25	30	30	31	34	8.4	8.6	5.5	5.7
00-40	21	20	24	24	5.4	5.5	3.1	3.1
00-60	9.5	8.9	17	17	3.7	3.8	2.1	2.1

NOTE: Specific activity decay corrected to 1994.

Table 8. Average ^{137}Cs , ^{90}Sr , $^{239+240}\text{Pu}$, and ^{241}Am soil concentrations in pCi/g dry weight for soil profiles taken on Kabelle Island (F13).

Soil depth (cm)	^{137}Cs		^{90}Sr		$^{239+240}\text{Pu}$		^{241}Am	
	Median	Mean	Median	Mean	Median	Mean	Median	Mean
00-05	28	34	26	32	8.3	14	11	12
05-10	14	15	7.2	12	1.6	3.1	3.7	4.9
10-15	7.6	9.4	8.6	16	0.68	3.6	0.79	1.9
15-25	3.2	6.2	4.6	12	1.7	2.9	0.98	1.0
25-40	1.4	2.1	3.7	3.8	0.36	0.71	0.49	0.48
40-60	0.42	0.48	2.6	2.2	0.12	0.23	0.12	0.12
00-05	28	34	26	32	8.3	14	11	12
00-10	19	22	20	22	8.0	8.7	7.0	8.2
00-15	18	18	20	20	6.8	7.0	5.0	6.0
00-25	14	13	16	17	6.7	5.3	3.6	3.3
00-40	9.2	8.8	10	12	4.4	3.6	2.1	1.9
00-60	5.6	5.9	7.2	8.7	3.0	2.5	0.87	0.87

NOTE: Specific activity decay corrected to 1994.

Table 9. Average ^{137}Cs , ^{90}Sr , $^{239+240}\text{Pu}$, and ^{241}Am soil concentrations in pCi/g dry weight for soil profiles taken on Mellu Island (F23).

Soil depth (cm)	^{137}Cs		^{90}Sr		$^{239+240}\text{Pu}$		^{241}Am	
	Median	Mean	Median	Mean	Median	Mean	Median	Mean
00-05	32	38	35	32	17	14	7.5	9.2
05-10	19	29	27	23	3.5	5.3	3.4	5.6
10-15	13	17	14	17	2.6	3.6	2.3	3.3
15-25	9.9	11	12	13	1.3	1.5	1.6	1.7
25-40	4.0	5.0	10	8.3	1.1	1.1	0.42	0.47
40-60	2.0	2.0	2.3	2.3	0.064	0.064	0.024	0.024
00-05	32	38	35	32	17	14	7.5	9.2
00-10	27	34	31	27	9.9	9.9	7.6	7.6
00-15	22	28	25	24	7.0	7.8	6.8	6.5
00-25	16	21	19	20	4.4	5.3	4.5	4.8
00-40	13	16	14	15	3.0	3.7	1.7	2.1
00-60	21	21	12	12	1.8	1.8	0.94	0.94

NOTE: Specific activity decay corrected to 1994.

^{137}Cs in Soil at Rongelap Atoll--Northern Islands

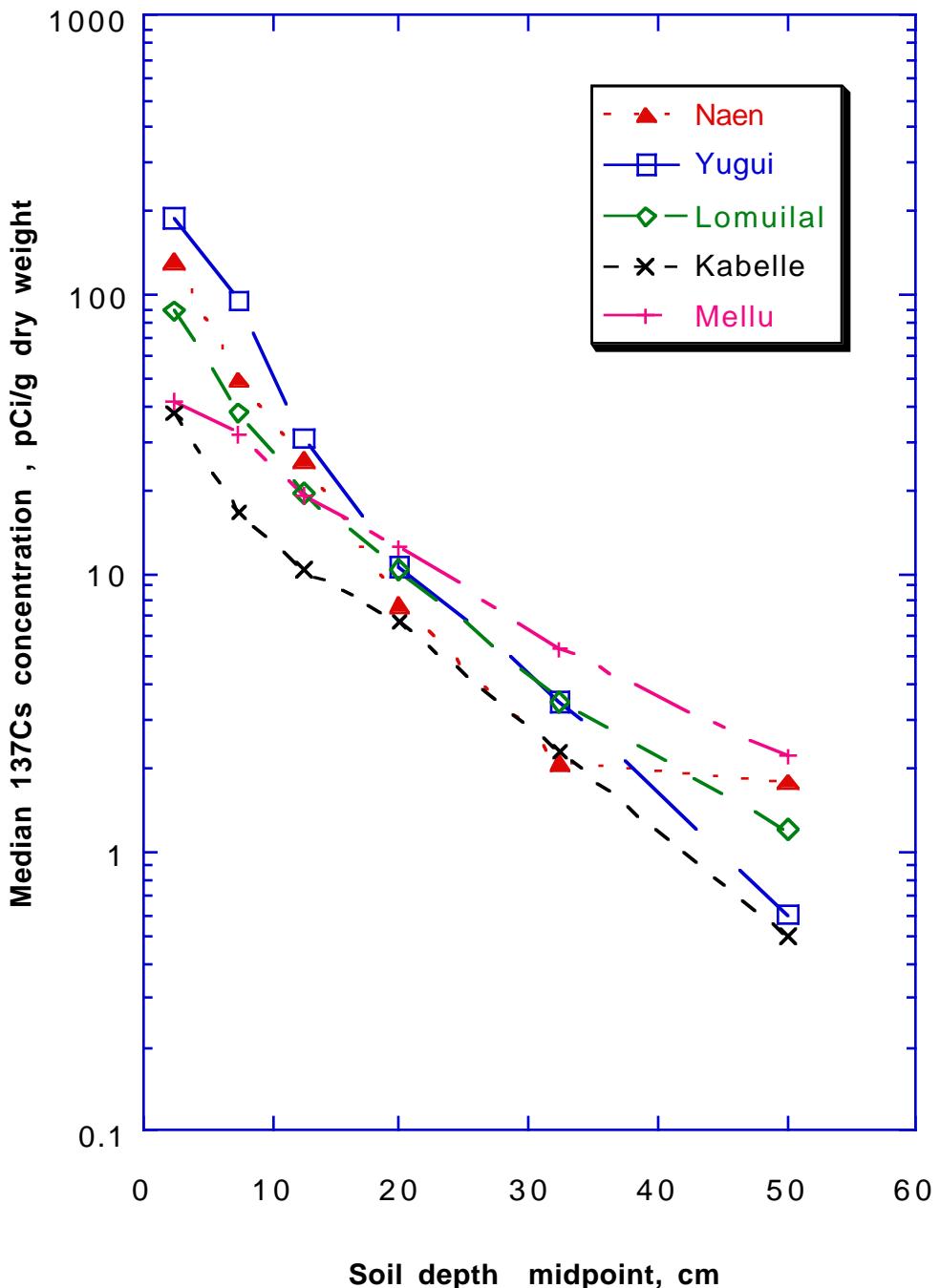


Figure 1. ^{137}Cs in soil at rongelap Atoll—northern islands.

Appendix A

Radionuclide concentration summary in vegetation samples collected during the 1978 NMIRS and from 1986 through 1989 in the northern islands of Rongelap Atoll.

Table A-1. The ^{137}Cs radionuclide concentration summary for vegetation (food crops) collected from the northern islands of Rongelap Atoll during the 1978 NMIRS together with our recent trips in 1986 through 1989.

Island name	Island code	N ^a	pCi g ⁻¹ wet wt					Mean of logs	SD of logs
			Minimum	Maximum	Median	Mean	SD		
Drinking Coconut Meat									
Naen	01f	8	1.8×10^0	2.8×10^1	4.2×10^0	6.7×10^0	8.6×10^0	1.5×10^0	8.7×10^{-1}
Lomiulal	07f	1	9.9×10^0	9.9×10^0	9.9×10^0	0.0×10^0	2.3×10^0	0.0×10^0	
Kabelle	13f	29	8.7×10^{-1}	7.2×10^0	1.9×10^0	2.2×10^0	1.3×10^0	6.8×10^{-1}	4.4×10^{-1}
Mellu	23f	1	3.6×10^0	3.6×10^0	3.6×10^0	3.6×10^0	0.0×10^0	1.3×10^0	0.0×10^0
Drinking Coconut Juice									
Naen	01f	6	6.9×10^{-1}	1.3×10^1	1.5×10^0	3.3×10^0	4.7×10^0	6.6×10^{-1}	1.0×10^0
Lomiulal	07f	1	1.4×10^0	1.4×10^0	1.4×10^0	1.4×10^0	0.0×10^0	3.6×10^{-1}	0.0×10^0
Kabelle	13f	28	3.8×10^{-1}	2.4×10^0	8.6×10^{-1}	1.0×10^0	5.0×10^{-1}	-8.8×10^{-2}	4.8×10^{-1}
Mellu	23f	1	2.7×10^0	2.7×10^0	2.7×10^0	2.7×10^0	0.0×10^0	9.9×10^{-1}	0.0×10^0
Copra Meat									
Naen	01f	5	4.5×10^0	9.6×10^0	7.7×10^0	7.5×10^0	2.2×10^0	2.0×10^0	3.3×10^{-1}
Yugui	05f	6	4.9×10^0	1.9×10^1	1.2×10^1	1.2×10^1	6.0×10^0	2.3×10^0	5.8×10^{-1}
Lomiulal	07f	8	8.0×10^0	1.9×10^1	1.1×10^1	1.2×10^1	4.1×10^0	2.4×10^0	3.2×10^{-1}
Kabelle	13f	23	1.1×10^0	1.3×10^1	3.3×10^0	4.4×10^0	2.7×10^0	1.3×10^0	5.5×10^{-1}
Mellu	23f	12	1.1×10^0	1.1×10^1	2.8×10^0	4.0×10^0	2.9×10^0	1.2×10^0	6.7×10^{-1}
Copra Juice									
Naen	01f	5	1.6×10^0	1.3×10^1	3.2×10^0	5.8×10^0	5.0×10^0	1.4×10^0	9.3×10^{-1}
Yugui	05f	6	3.9×10^0	1.2×10^1	1.0×10^1	8.6×10^0	3.6×10^0	2.1×10^0	5.1×10^{-1}
Lomiulal	07f	8	2.2×10^0	1.8×10^1	7.2×10^0	7.3×10^0	5.1×10^0	1.8×10^0	7.4×10^{-1}
Kabelle	13f	22	9.8×10^{-1}	5.1×10^0	2.4×10^0	2.5×10^0	1.0×10^0	8.3×10^{-1}	4.2×10^{-1}
Mellu	23f	11	1.9×10^{-1}	9.3×10^0	2.1×10^0	3.1×10^0	2.8×10^0	6.2×10^{-1}	1.2×10^0
Pandanus									
Naen	01f	4	3.1×10^0	1.0×10^1	5.7×10^0	6.1×10^0	3.2×10^0	1.7×10^0	5.6×10^{-1}
Yugui	05f	6	4.7×10^0	1.3×10^1	8.2×10^0	8.3×10^0	3.1×10^0	2.1×10^0	3.9×10^{-1}
Kabelle	13f	2	2.9×10^0	1.2×10^1	7.3×10^0	7.3×10^0	6.3×10^0	1.8×10^0	1.0×10^0
Mellu	23f	8	1.4×10^0	8.9×10^0	3.4×10^0	4.2×10^0	2.6×10^0	1.3×10^0	6.1×10^{-1}
Tacca Meat									
Yugui	05f	2	7.3×10^0	1.3×10^1	1.0×10^1	1.0×10^1	3.9×10^0	2.3×10^0	4.0×10^{-1}
Lomiulal	07f	1	1.3×10^0	1.3×10^0	1.3×10^0	1.3×10^0	0.0×10^0	2.7×10^{-1}	0.0×10^0
Mellu	23f	2	3.7×10^{-1}	4.3×10^0	2.4×10^0	2.4×10^0	2.8×10^0	2.4×10^{-1}	1.7×10^0

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table A-2. The ^{137}Cs radionuclide concentration summary for vegetation (indicator species) collected from the northern islands of Rongelap Atoll during the 1978 NMIRS together with our recent trips in 1986 through 1989.

Island name	Island code	N ^a	pCi g ⁻¹ wet wt				Mean of logs	SD of logs
Morinda Fruit								
Kabelle	13f	1	1.2×10^0	1.2×10^0	1.2×10^0	1.2×10^0	0.0×10^0	1.5×10^{-1}
Guettardia Leaves								
Kabelle	13f	7	1.9×10^{-1}	6.2×10^{-1}	4.5×10^{-1}	4.3×10^{-1}	1.5×10^{-1}	-9.1×10^{-1}
Messerschmidia Leaves								
Naen	01f	2	7.4×10^0	9.9×10^0	8.7×10^0	8.7×10^0	1.7×10^0	2.2×10^0
Kabelle	13f	11	3.3×10^{-2}	2.2×10^0	1.2×10^0	1.3×10^0	7.4×10^{-1}	-2.7×10^{-1}
Pisonia Leaves								
Naen	01f	1	1.5×10^1	1.5×10^1	1.5×10^1	1.5×10^1	0.0×10^0	2.7×10^0
Yugui	05f	1	1.5×10^1	1.5×10^1	1.5×10^1	1.5×10^1	0.0×10^0	2.7×10^0
Lomiulal	07f	5	4.6×10^0	1.0×10^1	8.9×10^0	8.3×10^0	2.2×10^0	2.1×10^0
Kabelle	13f	4	2.5×10^0	6.3×10^0	4.8×10^0	4.6×10^0	1.6×10^0	1.5×10^0
Pandanus Leaves								
Yugui	05f	1	1.2×10^1	1.2×10^1	1.2×10^1	1.2×10^1	0.0×10^0	2.5×10^0
Lomiulal	07f	1	8.3×10^0	8.3×10^0	8.3×10^0	8.3×10^0	0.0×10^0	2.1×10^0
Kabelle	13f	1	2.4×10^0	2.4×10^0	2.4×10^0	2.4×10^0	0.0×10^0	8.9×10^{-1}
Scaevola Leaves								
Naen	01f	6	7.4×10^{-1}	3.2×10^0	1.6×10^0	1.8×10^0	1.1×10^0	4.4×10^{-1}
Yugui	05f	5	5.9×10^{-1}	4.3×10^0	2.0×10^0	2.2×10^0	1.4×10^0	5.8×10^{-1}
Lomiulal	07f	9	8.6×10^{-1}	3.4×10^0	1.3×10^0	1.6×10^0	8.1×10^{-1}	3.5×10^{-1}
Kabelle	13f	16	5.3×10^{-1}	5.2×10^0	1.0×10^0	1.6×10^0	1.4×10^0	1.9×10^{-1}
Coconut Fronds								
Kabelle	3f	8	2.2×10^0	3.9×10^0	3.0×10^0	3.0×10^0	4.9×10^{-1}	1.1×10^0
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NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Appendix B

Radionuclide concentration summary in animal samples collected during the 1978 NMIRS and from 1986 through 1989 in the northern islands of Rongelap Atoll.

Table B-1. The ^{137}Cs radionuclide concentration summary for animals (food source) collected from the northern islands of Rongelap Atoll during the 1978 NMIRS together with our recent trips in 1986 through 1989.

Island name	Island code	N ^a	pCi g^{-1} wet wt				Mean of logs	SD of logs
			Minimum	Maximum	Median	Mean		
Coconut Crab Muscle								
Naen	01f	1	1.4×10^1	1.4×10^1	1.4×10^1	1.4×10^1	0.0×10^0	2.7×10^0
Yugui	05f	1	2.0×10^1	2.0×10^1	2.0×10^1	2.0×10^1	0.0×10^0	3.0×10^0
Lomiulal	07f	2	7.9×10^0	1.3×10^1	1.0×10^1	1.0×10^1	3.4×10^0	2.3×10^0
Kabelle	13f	10	3.0×10^0	9.8×10^0	4.0×10^0	5.2×10^0	2.5×10^0	1.5×10^0
Mellu	23f	3	2.7×10^0	5.5×10^0	3.5×10^0	3.9×10^0	1.4×10^0	1.3×10^0
Coconut Crab Hepatopancreas								
Naen	01f	1	1.4×10^1	1.4×10^1	1.4×10^1	1.4×10^1	0.0×10^0	2.7×10^0
Yugui	05f	1	1.7×10^1	1.7×10^1	1.7×10^1	1.7×10^1	0.0×10^0	2.9×10^0
Lomiulal	07f	1	7.0×10^0	7.0×10^0	7.0×10^0	7.0×10^0	0.0×10^0	1.9×10^0
Kabelle	13f	9	1.9×10^0	1.6×10^1	5.7×10^0	7.6×10^0	4.7×10^0	1.8×10^0
Mellu	23f	2	1.9×10^0	4.5×10^0	3.2×10^0	3.2×10^0	1.8×10^0	1.1×10^0

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Appendix C

Radionuclide concentration summary of all soil profile samples collected during the 1978 NMIRS and from 1986 through 1989 in the northern islands of Rongelap Atoll.

Table C-1. Cesium-137 radionuclide concentration summary for all soil profiles taken from the 1978 NMIRS together with our most recent trip in 1989 on Naen Island (F1).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt					Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean	SD		
0-05	16	1.1×10^1	4.0×10^2	8.3×10^1	1.2×10^2	1.1×10^2	4.4×10^0	9.3×10^{-1}
05-10	17	1.3×10^1	1.0×10^2	4.4×10^1	4.6×10^1	2.4×10^1	3.7×10^0	6.0×10^{-1}
10-15	17	4.0×10^0	7.3×10^1	2.1×10^1	2.3×10^1	1.6×10^1	3.0×10^0	6.7×10^{-1}
15-25	17	1.5×10^0	1.5×10^1	7.7×10^0	7.1×10^0	3.5×10^0	1.8×10^0	5.8×10^{-1}
25-40	16	2.9×10^{-1}	5.6×10^0	1.5×10^0	1.9×10^0	1.5×10^0	3.8×10^{-1}	7.8×10^{-1}
40-60	7	1.9×10^{-1}	4.9×10^0	1.5×10^0	1.7×10^0	1.6×10^0	2.8×10^{-2}	1.2×10^0
0-05	16	1.1×10^1	4.0×10^2	8.3×10^1	1.2×10^2	1.1×10^2	4.4×10^0	9.3×10^{-1}
0-10	16	1.5×10^1	2.2×10^2	6.9×10^1	8.4×10^1	5.8×10^1	4.2×10^0	7.5×10^{-1}
0-15	16	1.8×10^1	1.5×10^2	5.3×10^1	6.4×10^1	3.9×10^1	4.0×10^0	6.4×10^{-1}
0-25	16	1.4×10^1	9.5×10^1	3.6×10^1	4.1×10^1	2.3×10^1	3.6×10^0	5.7×10^{-1}
0-40	15	9.1×10^0	6.0×10^1	2.4×10^1	2.6×10^1	1.5×10^1	3.1×10^0	5.7×10^{-1}
0-60	6	6.1×10^0	2.3×10^1	1.3×10^1	1.4×10^1	7.2×10^0	2.6×10^0	5.4×10^{-1}

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-2. Cesium-137 radionuclide concentration summary for all soil profiles taken from the 1978 NMIRS together with our most recent trip in 1989 on Yugui Island (F5).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt				Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean		
0-05	11	4.3×10^1	3.0×10^2	1.7×10^2	1.7×10^2	9.0×10^1	5.0×10^0
05-10	11	7.4×10^0	2.7×10^2	7.3×10^1	8.6×10^1	7.1×10^1	4.1×10^0
10-15	11	3.6×10^0	6.0×10^1	3.2×10^1	2.8×10^1	1.6×10^1	3.1×10^0
15-25	11	2.7×10^0	3.0×10^1	8.8×10^0	9.7×10^0	7.9×10^0	2.0×10^0
25-40	11	1.7×10^0	6.4×10^0	2.8×10^0	3.2×10^0	1.4×10^0	1.1×10^0
40-60	1	5.3×10^{-1}	5.3×10^{-1}	5.3×10^{-1}	5.3×10^{-1}	0.0×10^0	-6.5×10^{-1}
0-05	11	4.3×10^1	3.0×10^2	1.7×10^2	1.7×10^2	9.0×10^1	5.0×10^0
0-10	11	2.5×10^1	2.1×10^2	1.4×10^2	1.3×10^2	5.4×10^1	4.7×10^0
0-15	11	1.8×10^1	1.5×10^2	1.0×10^2	9.5×10^1	3.9×10^1	4.4×10^0
0-25	11	1.3×10^1	9.4×10^1	6.5×10^1	6.1×10^1	2.5×10^1	4.0×10^0
0-40	11	1.0×10^1	6.0×10^1	4.2×10^1	3.9×10^1	1.5×10^1	3.6×10^0
0-60	1	1.4×10^1	1.4×10^1	1.4×10^1	1.4×10^1	0.0×10^0	2.7×10^0

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-3. Cesium-137 radionuclide concentration summary for all soil profiles taken from the 1978 NMIRS together with our most recent trip in 1989 on Lomiulal Island (F7).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt					Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean	SD		
0-05	14	3.2×10^0	2.3×10^2	5.3×10^1	8.1×10^1	6.7×10^1	4.0×10^0	1.1×10^0
05-10	14	1.2×10^1	5.7×10^1	3.7×10^1	3.5×10^1	1.4×10^1	3.5×10^0	4.8×10^{-1}
10-15	14	3.9×10^0	4.6×10^1	1.5×10^1	1.8×10^1	1.1×10^1	2.7×10^0	6.1×10^{-1}
15-25	14	1.8×10^0	2.4×10^1	6.3×10^0	9.4×10^0	7.6×10^0	1.9×10^0	8.1×10^{-1}
25-40	14	6.1×10^{-1}	1.0×10^1	1.5×10^0	3.2×10^0	3.5×10^0	6.6×10^{-1}	1.0×10^0
40-60	3	9.0×10^{-2}	2.8×10^0	3.9×10^{-1}	1.1×10^0	1.5×10^0	-7.8×10^{-1}	1.7×10^0
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0-05	14	3.2×10^0	2.3×10^2	5.3×10^1	8.1×10^1	6.7×10^1	4.0×10^0	1.1×10^0
0-10	14	1.8×10^1	1.3×10^2	4.7×10^1	5.8×10^1	3.6×10^1	3.9×10^0	6.4×10^{-1}
0-15	14	1.7×10^1	9.0×10^1	3.9×10^1	4.4×10^1	2.4×10^1	3.7×10^0	5.5×10^{-1}
0-25	14	1.3×10^1	5.6×10^1	3.0×10^1	3.0×10^1	1.4×10^1	3.3×10^0	4.7×10^{-1}
0-40	14	8.5×10^0	3.6×10^1	2.1×10^1	2.0×10^1	8.6×10^0	2.9×10^0	4.5×10^{-1}
0-60	3	6.4×10^0	1.1×10^1	9.5×10^0	8.9×10^0	2.3×10^0	2.2×10^0	2.8×10^{-1}

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-4. Cesium-137 radionuclide concentration summary for all soil profiles taken from the 1978 NMIRS together with our most recent trips in 1988 through 1989 on Kabelle Island (F13).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt				Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean		
0-05	34	1.0×10^{-1}	1.2×10^2	2.8×10^1	3.4×10^1	2.8×10^1	3.0×10^0
05-10	16	5.8×10^{-2}	3.9×10^1	1.4×10^1	1.5×10^1	1.1×10^1	2.2×10^0
10-15	17	2.6×10^{-1}	2.5×10^1	7.6×10^0	9.4×10^0	7.0×10^0	1.9×10^0
15-25	17	7.5×10^{-1}	2.2×10^1	3.2×10^0	6.2×10^0	6.5×10^0	1.4×10^0
25-40	17	1.3×10^{-1}	1.1×10^1	1.4×10^0	2.1×10^0	2.7×10^0	9.7×10^{-2}
40-60	6	1.2×10^{-1}	1.1×10^0	4.2×10^{-1}	4.8×10^{-1}	3.5×10^{-1}	-9.9×10^{-1}
0-05	34	1.0×10^{-1}	1.2×10^2	2.8×10^1	3.4×10^1	2.8×10^1	3.0×10^0
0-10	16	7.9×10^{-2}	6.3×10^1	1.9×10^1	2.2×10^1	1.7×10^1	2.5×10^0
0-15	16	1.4×10^{-1}	4.3×10^1	1.8×10^1	1.8×10^1	1.2×10^1	2.4×10^0
0-25	16	3.9×10^{-1}	2.6×10^1	1.4×10^1	1.3×10^1	7.8×10^0	2.2×10^0
0-40	16	2.2×10^0	1.8×10^1	9.2×10^0	8.8×10^0	5.2×10^0	2.0×10^0
0-60	6	1.6×10^0	1.2×10^1	5.6×10^0	5.9×10^0	4.2×10^0	1.5×10^0

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-5. Cesium-137 radionuclide concentration summary for all soil profiles taken from the 1978 NMIRS together with our most recent trip in 1989 on Mellu Island (F23).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt				Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean		
0-05	15	1.1×10^1	1.0×10^2	3.2×10^1	3.8×10^1	2.8×10^1	3.4×10^0
05-10	15	1.2×10^1	5.7×10^1	1.9×10^1	2.9×10^1	1.7×10^1	3.2×10^0
10-15	15	9.2×10^0	4.7×10^1	1.3×10^1	1.7×10^1	1.0×10^1	2.7×10^0
15-25	15	3.2×10^0	3.5×10^1	9.9×10^0	1.1×10^1	8.7×10^0	2.2×10^0
25-40	14	9.7×10^{-1}	1.2×10^1	4.0×10^0	5.0×10^0	3.7×10^0	1.3×10^0
40-60	1	2.0×10^0	2.0×10^0	2.0×10^0	2.0×10^0	0.0×10^0	6.8×10^{-1}
0-05	15	1.1×10^1	1.0×10^2	3.2×10^1	3.8×10^1	2.8×10^1	3.4×10^0
0-10	15	1.1×10^1	7.9×10^1	2.7×10^1	3.4×10^1	2.1×10^1	3.3×10^0
0-15	15	1.2×10^1	6.1×10^1	2.2×10^1	2.8×10^1	1.6×10^1	3.2×10^0
0-25	15	1.0×10^1	5.1×10^1	1.6×10^1	2.1×10^1	1.2×10^1	2.9×10^0
0-40	14	8.0×10^0	3.3×10^1	1.3×10^1	1.6×10^1	7.9×10^0	2.7×10^0
0-60	1	2.1×10^1	2.1×10^1	2.1×10^1	2.1×10^1	0.0×10^0	3.0×10^0

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-6. Strontium-90 radionuclide concentration summary for all soil profiles taken during the 1978 NMIRS on Naen Island (F1).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt				Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean		
0-05	7	4.7×10^1	1.7×10^2	1.1×10^2	1.1×10^2	4.0×10^1	4.6×10^0
05-10	7	1.1×10^1	1.3×10^2	7.7×10^1	7.9×10^1	3.9×10^1	4.2×10^0
10-15	7	6.6×10^0	9.5×10^1	4.1×10^1	5.1×10^1	3.5×10^1	3.6×10^0
15-25	7	2.0×10^0	4.8×10^1	1.0×10^1	1.5×10^1	1.6×10^1	2.2×10^0
25-40	7	1.6×10^0	3.6×10^1	6.9×10^0	9.7×10^0	1.2×10^1	1.8×10^0
40-60	7	1.2×10^0	6.6×10^0	3.6×10^0	3.7×10^0	1.9×10^0	1.2×10^0
0-05	7	4.7×10^1	1.7×10^2	1.1×10^2	1.1×10^2	4.0×10^1	4.6×10^0
0-10	7	4.6×10^1	1.4×10^2	8.7×10^1	9.3×10^1	3.5×10^1	4.5×10^0
0-15	7	3.3×10^1	1.2×10^2	7.0×10^1	7.9×10^1	3.0×10^1	4.3×10^0
0-25	7	2.1×10^1	8.2×10^1	4.7×10^1	5.3×10^1	2.0×10^1	3.9×10^0
0-40	7	1.6×10^1	6.5×10^1	3.2×10^1	3.7×10^1	1.6×10^1	3.5×10^0
0-60	7	1.1×10^1	4.5×10^1	2.3×10^1	2.6×10^1	1.1×10^1	3.2×10^0

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-7. Strontium-90 radionuclide concentration summary for all soil profiles taken during the 1978 NMIRS on Yugui Island (F5).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt				Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean		
0-05	1	3.2×10^1	3.2×10^1	3.2×10^1	3.2×10^1	0.0×10^0	3.5×10^0
05-10	1	2.0×10^1	2.0×10^1	2.0×10^1	2.0×10^1	0.0×10^0	3.0×10^0
10-15	1	1.1×10^1	1.1×10^1	1.1×10^1	1.1×10^1	0.0×10^0	2.4×10^0
15-25	1	3.6×10^0	3.6×10^0	3.6×10^0	3.6×10^0	0.0×10^0	1.3×10^0
25-40	1	2.7×10^0	2.7×10^0	2.7×10^0	2.7×10^0	0.0×10^0	1.0×10^0
40-60	1	2.1×10^{-1}	2.1×10^{-1}	2.1×10^{-1}	2.1×10^{-1}	0.0×10^0	-1.6×10^0
0-05	1	3.2×10^1	3.2×10^1	3.2×10^1	3.2×10^1	0.0×10^0	3.5×10^0
0-10	1	2.6×10^1	2.6×10^1	2.6×10^1	2.6×10^1	0.0×10^0	3.3×10^0
0-15	1	2.1×10^1	2.1×10^1	2.1×10^1	2.1×10^1	0.0×10^0	3.1×10^0
0-25	1	1.4×10^1	1.4×10^1	1.4×10^1	1.4×10^1	0.0×10^0	2.7×10^0
0-40	1	9.9×10^0	9.9×10^0	9.9×10^0	9.9×10^0	0.0×10^0	2.3×10^0
0-60	1	6.7×10^0	6.7×10^0	6.7×10^0	6.7×10^0	0.0×10^0	1.9×10^0

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-8. Strontium-90 radionuclide concentration summary for all soil profiles taken during the 1978 NMIRS on Lomiulal Island (F7).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt					Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean	SD		
0-05	4	2.2×10^1	1.4×10^2	5.1×10^1	6.6×10^1	5.2×10^1	4.0×10^0	7.9×10^{-1}
05-10	4	2.0×10^1	6.7×10^1	4.9×10^1	4.6×10^1	2.1×10^1	3.7×10^0	5.4×10^{-1}
10-15	4	1.1×10^1	3.7×10^1	2.6×10^1	2.5×10^1	1.1×10^1	3.1×10^0	5.1×10^{-1}
15-25	4	6.8×10^0	3.2×10^1	1.2×10^1	1.6×10^1	1.1×10^1	2.6×10^0	6.5×10^{-1}
25-40	4	1.4×10^0	1.7×10^1	6.3×10^0	7.8×10^0	6.6×10^0	1.7×10^0	1.0×10^0
40-60	4	4.9×10^{-1}	8.1×10^0	2.6×10^0	3.4×10^0	3.3×10^0	8.1×10^{-1}	1.2×10^0
<hr/>								
0-05	4	2.2×10^1	1.4×10^2	5.1×10^1	6.6×10^1	5.2×10^1	4.0×10^0	7.9×10^{-1}
0-10	4	3.0×10^1	1.0×10^2	4.5×10^1	5.6×10^1	3.3×10^1	3.9×10^0	5.2×10^{-1}
0-15	4	3.2×10^1	7.7×10^1	3.7×10^1	4.6×10^1	2.1×10^1	3.8×10^0	4.1×10^{-1}
0-25	4	2.5×10^1	4.9×10^1	3.1×10^1	3.4×10^1	1.1×10^1	3.5×10^0	2.9×10^{-1}
0-40	4	1.8×10^1	3.1×10^1	2.4×10^1	2.4×10^1	5.9×10^0	3.2×10^0	2.5×10^{-1}
0-60	4	1.3×10^1	2.1×10^1	1.7×10^1	1.7×10^1	4.1×10^0	2.8×10^0	2.5×10^{-1}

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-9. Strontium-90 radionuclide concentration summary for all soil profiles taken during the 1978 NMIRS on Kabelle Island (F13).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt				Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean		
0-05	5	6.4×10^0	6.5×10^1	2.6×10^1	3.2×10^1	2.2×10^1	3.2×10^0
05-10	5	2.7×10^0	3.1×10^1	7.2×10^0	1.2×10^1	1.1×10^1	2.2×10^0
10-15	5	1.6×10^0	4.8×10^1	8.6×10^0	1.6×10^1	1.9×10^1	2.1×10^0
15-25	5	2.7×10^0	3.7×10^1	4.6×10^0	1.2×10^1	1.5×10^1	2.0×10^0
25-40	5	1.1×10^0	7.1×10^0	3.7×10^0	3.8×10^0	2.2×10^0	1.2×10^0
40-60	5	9.2×10^{-1}	3.2×10^0	2.6×10^0	2.2×10^0	1.1×10^0	6.7×10^{-1}
0-05	5	6.4×10^0	6.5×10^1	2.6×10^1	3.2×10^1	2.2×10^1	3.2×10^0
0-10	5	6.3×10^0	3.6×10^1	2.0×10^1	2.2×10^1	1.1×10^1	3.0×10^0
0-15	5	1.4×10^1	2.6×10^1	2.0×10^1	2.0×10^1	5.2×10^0	3.0×10^0
0-25	5	1.0×10^1	2.7×10^1	1.6×10^1	1.7×10^1	6.3×10^0	2.8×10^0
0-40	5	9.0×10^0	1.9×10^1	1.0×10^1	1.2×10^1	3.8×10^0	2.4×10^0
0-60	5	6.8×10^0	1.3×10^1	7.2×10^0	8.7×10^0	2.8×10^0	2.1×10^0

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-10. Strontium-90 radionuclide concentration summary for all soil profiles taken during the 1978 NMIRS on Mellu Island (F23).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt					Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean	SD		
0-05	4	1.9×10^1	3.8×10^1	3.5×10^1	3.2×10^1	8.4×10^0	3.4×10^0	3.1×10^{-1}
05-10	4	8.6×10^0	3.1×10^1	2.7×10^1	2.3×10^1	9.8×10^0	3.0×10^0	5.9×10^{-1}
10-15	4	8.4×10^0	3.2×10^1	1.4×10^1	1.7×10^1	1.0×10^1	2.7×10^0	5.6×10^{-1}
15-25	4	4.6×10^0	2.3×10^1	1.2×10^1	1.3×10^1	8.1×10^0	2.4×10^0	7.0×10^{-1}
25-40	4	1.7×10^0	1.1×10^1	1.0×10^1	8.3×10^0	4.5×10^0	1.9×10^0	9.3×10^{-1}
40-60	1	2.3×10^0	2.3×10^0	2.3×10^0	2.3×10^0	0.0×10^0	8.4×10^{-1}	0.0×10^0
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0-05	4	1.9×10^1	3.8×10^1	3.5×10^1	3.2×10^1	8.4×10^0	3.4×10^0	3.1×10^{-1}
0-10	4	1.4×10^1	3.4×10^1	3.1×10^1	2.7×10^1	9.1×10^0	3.3×10^0	4.2×10^{-1}
0-15	4	1.2×10^1	3.3×10^1	2.5×10^1	2.4×10^1	8.8×10^0	3.1×10^0	4.3×10^{-1}
0-25	4	1.1×10^1	2.9×10^1	1.9×10^1	2.0×10^1	7.8×10^0	2.9×10^0	4.2×10^{-1}
0-40	4	1.1×10^1	2.3×10^1	1.4×10^1	1.5×10^1	5.7×10^0	2.7×10^0	3.7×10^{-1}
0-60	1	1.2×10^1	1.2×10^1	1.2×10^1	1.2×10^1	0.0×10^0	2.5×10^0	0.0×10^0

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-11. Plutonium-239+240 radionuclide concentration summary for all soil profiles taken during the 1978 NMIRS together with our recent trip in 1989 on Naen Island (F1).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt					Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean	SD		
0-05	16	4.8×10^0	1.0×10^2	4.9×10^1	4.3×10^1	2.5×10^1	3.5×10^0	8.1×10^{-1}
05-10	7	3.1×10^0	5.2×10^1	1.8×10^1	2.1×10^1	1.6×10^1	2.8×10^0	8.6×10^{-1}
10-15	7	2.1×10^0	1.9×10^1	8.2×10^0	1.1×10^1	6.4×10^0	2.2×10^0	7.7×10^{-1}
15-25	7	2.8×10^{-1}	7.6×10^0	1.4×10^0	2.2×10^0	2.6×10^0	2.5×10^{-1}	1.2×10^0
25-40	7	6.6×10^{-2}	3.3×10^0	1.4×10^{-1}	6.9×10^{-1}	1.2×10^0	-1.3×10^0	1.4×10^0
40-60	7	4.5×10^{-2}	5.5×10^{-1}	1.8×10^{-1}	2.0×10^{-1}	1.7×10^{-1}	-1.9×10^0	8.5×10^{-1}
0-05	16	4.8×10^0	1.0×10^2	4.9×10^1	4.3×10^1	2.5×10^1	3.5×10^0	8.1×10^{-1}
0-10	7	8.4×10^0	5.7×10^1	2.3×10^1	2.5×10^1	1.7×10^1	3.0×10^0	6.6×10^{-1}
0-15	7	8.3×10^0	4.4×10^1	1.8×10^1	2.0×10^1	1.2×10^1	2.9×10^0	5.8×10^{-1}
0-25	7	5.2×10^0	2.7×10^1	1.1×10^1	1.3×10^1	7.4×10^0	2.4×10^0	5.6×10^{-1}
0-40	7	3.3×10^0	1.7×10^1	6.8×10^0	8.4×10^0	4.7×10^0	2.0×10^0	5.7×10^{-1}
0-60	7	2.2×10^0	1.1×10^1	4.5×10^0	5.7×10^0	3.2×10^0	1.6×10^0	5.7×10^{-1}

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-12. Plutonium-239+240 radionuclide concentration summary for all soil profiles taken during the 1978 NMIRS together with our recent trip in 1989 on Yugui Island (F5).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt					Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean	SD		
0-05	11	1.5×10^1	1.2×10^2	5.5×10^1	5.8×10^1	3.1×10^1	3.9×10^0	5.9×10^{-1}
05-10	1	2.3×10^0	2.3×10^0	2.3×10^0	2.3×10^0	0.0×10^0	8.1×10^{-1}	0.0×10^0
10-15	1	6.6×10^{-1}	6.6×10^{-1}	6.6×10^{-1}	6.6×10^{-1}	0.0×10^0	-4.1×10^{-1}	0.0×10^0
15-25	1	2.3×10^{-1}	2.3×10^{-1}	2.3×10^{-1}	2.3×10^{-1}	0.0×10^0	-1.5×10^0	0.0×10^0
25-40	1	1.2×10^{-1}	1.2×10^{-1}	1.2×10^{-1}	1.2×10^{-1}	0.0×10^0	-2.2×10^0	0.0×10^0
40-60	1	3.2×10^{-2}	3.2×10^{-2}	3.2×10^{-2}	3.2×10^{-2}	0.0×10^0	-3.4×10^0	0.0×10^0
0-05	11	1.5×10^1	1.2×10^2	5.5×10^1	5.8×10^1	3.1×10^1	3.9×10^0	5.9×10^{-1}
0-10	1	8.6×10^0	8.6×10^0	8.6×10^0	8.6×10^0	0.0×10^0	2.2×10^0	0.0×10^0
0-15	1	5.9×10^0	5.9×10^0	5.9×10^0	5.9×10^0	0.0×10^0	1.8×10^0	0.0×10^0
0-25	1	3.7×10^0	3.7×10^0	3.7×10^0	3.7×10^0	0.0×10^0	1.3×10^0	0.0×10^0
0-40	1	2.3×10^0	2.3×10^0	2.3×10^0	2.3×10^0	0.0×10^0	8.5×10^{-1}	0.0×10^0
0-60	1	1.6×10^0	1.6×10^0	1.6×10^0	1.6×10^0	0.0×10^0	4.5×10^{-1}	0.0×10^0

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-13. Plutonium-239+240 radionuclide concentration summary for all soil profiles taken during the 1978 NMIRS together with our recent trip in 1989 on Lomiulal Island (F7).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt					Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean	SD		
0-05	14	8.6×10^0	6.7×10^1	3.5×10^1	3.4×10^1	1.8×10^1	3.4×10^0	6.5×10^{-1}
05-10	4	3.9×10^0	1.7×10^1	1.6×10^1	1.3×10^1	6.2×10^0	2.4×10^0	7.1×10^{-1}
10-15	4	1.4×10^0	1.5×10^1	4.4×10^0	6.3×10^0	6.1×10^0	1.5×10^0	1.0×10^0
15-25	4	5.4×10^{-1}	6.3×10^0	1.1×10^0	2.3×10^0	2.7×10^0	3.6×10^{-1}	1.1×10^0
25-40	4	8.6×10^{-2}	7.2×10^{-1}	4.1×10^{-1}	4.0×10^{-1}	3.2×10^{-1}	-1.2×10^0	1.0×10^0
40-60	4	1.9×10^{-2}	6.3×10^{-1}	1.3×10^{-1}	2.3×10^{-1}	2.8×10^{-1}	-2.2×10^0	1.5×10^0
<hr/>								
0-05	14	8.6×10^0	6.7×10^1	3.5×10^1	3.4×10^1	1.8×10^1	3.4×10^0	6.5×10^{-1}
0-10	4	1.3×10^1	2.1×10^1	1.6×10^1	1.6×10^1	3.8×10^0	2.8×10^0	2.4×10^{-1}
0-15	4	1.1×10^1	1.5×10^1	1.3×10^1	1.3×10^1	1.8×10^0	2.5×10^0	1.4×10^{-1}
0-25	4	6.9×10^0	1.1×10^1	8.4×10^0	8.6×10^0	1.7×10^0	2.1×10^0	1.9×10^{-1}
0-40	4	4.4×10^0	6.9×10^0	5.4×10^0	5.5×10^0	1.1×10^0	1.7×10^0	1.9×10^{-1}
0-60	4	2.9×10^0	4.8×10^0	3.7×10^0	3.8×10^0	7.9×10^{-1}	1.3×10^0	2.1×10^{-1}

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-14. Plutonium-239+240 radionuclide concentration summary for all soil profiles taken during the 1978 NMIRS on Kabelle Island (F13).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt					Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean	SD		
0-05	5	5.5×10^{-1}	3.2×10^1	8.3×10^0	1.4×10^1	1.5×10^1	1.8×10^0	1.8×10^0
05-10	5	5.0×10^{-1}	7.8×10^0	1.6×10^0	3.1×10^0	2.9×10^0	7.4×10^{-1}	1.1×10^0
10-15	5	4.5×10^{-1}	1.2×10^1	6.8×10^{-1}	3.6×10^0	4.8×10^0	4.7×10^{-1}	1.4×10^0
15-25	5	1.8×10^{-1}	9.4×10^0	1.7×10^0	2.9×10^0	3.8×10^0	2.0×10^{-1}	1.6×10^0
25-40	5	7.1×10^{-2}	1.8×10^0	3.6×10^{-1}	7.1×10^{-1}	7.0×10^{-1}	-8.7×10^{-1}	1.3×10^0
40-60	5	5.1×10^{-2}	5.0×10^{-1}	1.2×10^{-1}	2.3×10^{-1}	2.0×10^{-1}	-1.8×10^0	9.9×10^{-1}
0-05	5	5.5×10^{-1}	3.2×10^1	8.3×10^0	1.4×10^1	1.5×10^1	1.8×10^0	1.8×10^0
0-10	5	5.3×10^{-1}	1.7×10^1	8.0×10^0	8.7×10^0	7.7×10^0	1.5×10^0	1.5×10^0
0-15	5	5.8×10^{-1}	1.2×10^1	6.8×10^0	7.0×10^0	4.5×10^0	1.6×10^0	1.2×10^0
0-25	5	1.0×10^0	7.6×10^0	6.7×10^0	5.3×10^0	2.7×10^0	1.5×10^0	8.5×10^{-1}
0-40	5	1.3×10^0	4.9×10^0	4.4×10^0	3.6×10^0	1.5×10^0	1.2×10^0	5.6×10^{-1}
0-60	5	1.0×10^0	3.3×10^0	3.0×10^0	2.5×10^0	9.9×10^{-1}	8.2×10^{-1}	5.0×10^{-1}

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-15. Plutonium-239+240 radionuclide concentration summary for all soil profiles taken during the 1978 NMIRS together with our recent trip in 1989 on Mellu Island (F23).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt					Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean	SD		
0-05	15	3.0×10^0	2.3×10^1	1.7×10^1	1.4×10^1	7.1×10^0	2.4×10^0	6.9×10^{-1}
05-10	4	2.5×10^0	1.2×10^1	3.5×10^0	5.3×10^0	4.3×10^0	1.5×10^0	6.9×10^{-1}
10-15	4	7.2×10^{-1}	8.7×10^0	2.6×10^0	3.6×10^0	3.6×10^0	9.0×10^{-1}	1.1×10^0
15-25	4	3.6×10^{-1}	3.2×10^0	1.3×10^0	1.5×10^0	1.3×10^0	1.1×10^{-1}	9.7×10^{-1}
25-40	4	1.7×10^{-1}	2.2×10^0	1.1×10^0	1.1×10^0	9.8×10^{-1}	-3.3×10^{-1}	1.2×10^0
40-60	1	6.4×10^{-2}	6.4×10^{-2}	6.4×10^{-2}	6.4×10^{-2}	0.0×10^0	-2.8×10^0	0.0×10^0
0-05	15	3.0×10^0	2.3×10^1	1.7×10^1	1.4×10^1	7.1×10^0	2.4×10^0	6.9×10^{-1}
0-10	4	5.4×10^0	1.4×10^1	9.9×10^0	9.9×10^0	3.7×10^0	2.2×10^0	4.1×10^{-1}
0-15	4	4.7×10^0	1.2×10^1	7.0×10^0	7.8×10^0	3.3×10^0	2.0×10^0	4.0×10^{-1}
0-25	4	3.6×10^0	8.7×10^0	4.4×10^0	5.3×10^0	2.3×10^0	1.6×10^0	3.9×10^{-1}
0-40	4	2.7×10^0	6.1×10^0	3.0×10^0	3.7×10^0	1.6×10^0	1.3×10^0	3.7×10^{-1}
0-60	1	1.8×10^0	1.8×10^0	1.8×10^0	1.8×10^0	0.0×10^0	6.1×10^{-1}	0.0×10^0

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-16. Americium-241 radionuclide concentration summary for all soil profiles taken from the 1978 NMIRS together with our most recent trip in 1989 on Naen Island (F1).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt				Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean		
0-05	16	6.9×10^0	6.9×10^1	2.6×10^1	2.9×10^1	2.0×10^1	3.1×10^0
05-10	15	1.3×10^0	1.5×10^1	8.7×10^0	8.5×10^0	4.2×10^0	2.0×10^0
10-15	14	2.5×10^{-1}	1.1×10^1	3.3×10^0	3.3×10^0	2.9×10^0	7.1×10^{-1}
15-25	10	1.0×10^{-1}	3.9×10^0	6.3×10^{-1}	1.1×10^0	1.1×10^0	-4.2×10^{-1}
25-40	9	3.0×10^{-2}	2.0×10^0	1.2×10^{-1}	3.1×10^{-1}	6.3×10^{-1}	-2.2×10^0
40-60	6	1.4×10^{-2}	3.6×10^{-1}	6.9×10^{-2}	1.1×10^{-1}	1.3×10^{-1}	-2.8×10^0
<hr/>							
0-05	16	6.9×10^0	6.9×10^1	2.6×10^1	2.9×10^1	2.0×10^1	3.1×10^0
0-10	15	6.1×10^0	3.7×10^1	2.1×10^1	1.9×10^1	9.6×10^0	2.8×10^0
0-15	13	4.3×10^0	2.2×10^1	1.2×10^1	1.3×10^1	5.7×10^0	2.5×10^0
0-25	10	2.7×10^0	1.4×10^1	6.8×10^0	7.1×10^0	3.2×10^0	1.9×10^0
0-40	8	1.7×10^0	8.5×10^0	4.3×10^0	4.6×10^0	2.2×10^0	1.4×10^0
0-60	6	1.1×10^0	4.3×10^0	2.4×10^0	2.5×10^0	1.1×10^0	8.4×10^{-1}

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-17. Americium-241 radionuclide concentration summary for all soil profiles taken from the 1978 NMIRS together with our most recent trip in 1989 on Yugui Island (F5).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt					Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean	SD		
0-05	11	6.5×10^0	1.2×10^2	4.8×10^1	5.3×10^1	3.1×10^1	3.8×10^0	7.7×10^{-1}
05-10	9	1.5×10^0	1.1×10^2	4.3×10^0	1.6×10^1	3.4×10^1	1.7×10^0	1.3×10^0
10-15	7	2.4×10^{-1}	4.9×10^0	8.9×10^{-1}	1.7×10^0	1.6×10^0	1.3×10^{-1}	1.0×10^0
15-25	4	7.7×10^{-2}	8.7×10^{-1}	3.2×10^{-1}	4.0×10^{-1}	3.4×10^{-1}	-1.3×10^0	1.0×10^0
25-40	1	5.4×10^{-2}	5.4×10^{-2}	5.4×10^{-2}	5.4×10^{-2}	0.0×10^0	-2.9×10^0	0.0×10^0
40-60	0	0.0×10^0	0.0×10^0	0.0×10^0	0.0×10^0	0.0×10^0	0.0×10^0	0.0×10^0
<hr/>								
0-05	11	6.5×10^0	1.2×10^2	4.8×10^1	5.3×10^1	3.1×10^1	3.8×10^0	7.7×10^{-1}
0-10	9	4.0×10^0	8.3×10^1	2.7×10^1	3.4×10^1	2.5×10^1	3.2×10^0	8.8×10^{-1}
0-15	7	2.8×10^0	5.6×10^1	1.9×10^1	2.1×10^1	1.7×10^1	2.7×10^0	9.3×10^{-1}
0-25	2	1.7×10^0	3.4×10^1	1.8×10^1	1.8×10^1	2.3×10^1	2.0×10^0	2.1×10^0
0-40	1	1.1×10^0	1.1×10^0	1.1×10^0	1.1×10^0	0.0×10^0	7.6×10^{-2}	0.0×10^0
0-60	0	0.0×10^0	0.0×10^0	0.0×10^0	0.0×10^0	0.0×10^0	0.0×10^0	0.0×10^0

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-18. Americium-241 radionuclide concentration summary for all soil profiles taken from the 1978 NMIRS together with our most recent trip in 1989 on Lomiul Island (F7).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt					Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean	SD		
0-05	12	4.7×10^0	4.5×10^1	2.2×10^1	2.2×10^1	1.3×10^1	2.9×10^0	7.6×10^{-1}
05-10	11	1.9×10^0	1.7×10^1	4.9×10^0	6.3×10^0	4.2×10^0	1.7×10^0	6.0×10^{-1}
10-15	9	1.2×10^0	8.9×10^0	2.3×10^0	3.0×10^0	2.4×10^0	8.9×10^{-1}	6.3×10^{-1}
15-25	7	2.0×10^{-1}	3.6×10^0	3.7×10^{-1}	8.4×10^{-1}	1.2×10^0	-7.1×10^{-1}	9.7×10^{-1}
25-40	3	5.6×10^{-2}	2.9×10^{-1}	1.9×10^{-1}	1.8×10^{-1}	1.2×10^{-1}	-1.9×10^0	8.5×10^{-1}
40-60	2	1.4×10^{-2}	3.4×10^{-1}	1.8×10^{-1}	1.8×10^{-1}	2.3×10^{-1}	-2.7×10^0	2.3×10^0
<hr/>								
0-05	12	4.7×10^0	4.5×10^1	2.2×10^1	2.2×10^1	1.3×10^1	2.9×10^0	7.6×10^{-1}
0-10	11	6.1×10^0	2.4×10^1	1.3×10^1	1.4×10^1	6.4×10^0	2.5×10^0	5.0×10^{-1}
0-15	9	4.6×10^0	1.5×10^1	8.1×10^0	9.3×10^0	3.8×10^0	2.2×10^0	4.2×10^{-1}
0-25	4	3.4×10^0	8.6×10^0	5.5×10^0	5.7×10^0	2.3×10^0	1.7×10^0	4.0×10^{-1}
0-40	2	2.1×10^0	4.0×10^0	3.1×10^0	3.1×10^0	1.3×10^0	1.1×10^0	4.5×10^{-1}
0-60	2	1.4×10^0	2.8×10^0	2.1×10^0	2.1×10^0	9.6×10^{-1}	6.9×10^{-1}	4.7×10^{-1}

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-19. Americium-241 radionuclide concentration summary for all soil profiles taken from the 1978 NMIRS together with our most recent trips in 1988 through 1989 on Kabelle Island (F13).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt					Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean	SD		
0-05	31	3.0×10^{-1}	3.0×10^1	1.1×10^1	1.2×10^1	6.9×10^0	2.2×10^0	1.0×10^0
05-10	13	3.4×10^{-1}	2.4×10^1	3.7×10^0	4.9×10^0	6.2×10^0	1.0×10^0	1.2×10^0
10-15	13	1.4×10^1	5.1×10^0	7.9×10^{-1}	1.9×10^0	1.9×10^0	5.7×10^{-2}	1.2×10^0
15-25	9	5.2×10^{-2}	2.1×10^0	9.8×10^{-1}	1.0×10^0	7.0×10^{-1}	-3.9×10^{-1}	1.2×10^0
25-40	4	2.8×10^{-2}	9.1×10^{-1}	4.9×10^{-1}	4.8×10^{-1}	4.2×10^{-1}	-1.4×10^0	1.6×10^0
40-60	2	4.7×10^{-2}	2.0×10^{-1}	1.2×10^{-1}	1.2×10^{-1}	1.1×10^{-1}	-2.3×10^0	1.0×10^0
0-05	31	3.0×10^{-1}	3.0×10^1	1.1×10^1	1.2×10^1	6.9×10^0	2.2×10^0	1.0×10^0
0-10	13	3.2×10^{-1}	2.4×10^1	7.0×10^0	8.2×10^0	6.1×10^0	1.8×10^0	1.0×10^0
0-15	12	3.3×10^{-1}	1.6×10^1	5.0×10^0	6.0×10^0	4.1×10^0	1.5×10^0	9.6×10^{-1}
0-25	8	5.9×10^{-1}	4.6×10^0	3.6×10^0	3.3×10^0	1.3×10^0	1.1×10^0	6.7×10^{-1}
0-40	4	7.1×10^{-1}	2.7×10^0	2.1×10^0	1.9×10^0	8.9×10^{-1}	5.3×10^{-1}	6.1×10^{-1}
0-60	2	5.4×10^{-1}	1.2×10^0	8.7×10^{-1}	8.7×10^{-1}	4.7×10^{-1}	-2.2×10^{-1}	5.7×10^{-1}

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Table C-20.Americium-241 radionuclide concentration summary for all soil profiles taken from the 1978 NMIRS together with our most recent trip in 1989 on Mellu Island (F23).

Soil depth (cm)	N ^a	pCi g ⁻¹ dry wt					Mean of logs	SD of logs
		Minimum	Maximum	Median	Mean	SD		
0-05	13	1.5×10^0	2.5×10^1	7.5×10^0	9.2×10^0	6.6×10^0	1.9×10^0	8.2×10^{-1}
05-10	12	1.2×10^0	1.5×10^1	3.4×10^0	5.6×10^0	4.7×10^0	1.4×10^0	8.2×10^{-1}
10-15	10	9.1×10^{-1}	1.1×10^1	2.3×10^0	3.3×10^0	3.1×10^0	9.2×10^{-1}	7.5×10^{-1}
15-25	9	2.6×10^{-1}	5.6×10^0	1.6×10^0	1.7×10^0	1.6×10^0	1.9×10^{-1}	9.3×10^{-1}
25-40	4	1.7×10^{-1}	8.8×10^{-1}	4.2×10^{-1}	4.7×10^{-1}	3.1×10^{-1}	-9.4×10^{-1}	7.2×10^{-1}
40-60	1	2.4×10^{-2}	2.4×10^{-2}	2.4×10^{-2}	2.4×10^{-2}	0.0×10^0	-3.7×10^0	0.0×10^0
<hr/>								
0-05	13	1.5×10^0	2.5×10^1	7.5×10^0	9.2×10^0	6.6×10^0	1.9×10^0	8.2×10^{-1}
0-10	12	1.4×10^0	1.9×10^1	7.6×10^0	7.6×10^0	4.7×10^0	1.8×10^0	6.9×10^{-1}
0-15	9	1.3×10^0	1.5×10^1	6.8×10^0	6.5×10^0	4.1×10^0	1.7×10^0	7.4×10^{-1}
0-25	7	2.1×10^0	9.5×10^0	4.5×10^0	4.8×10^0	2.8×10^0	1.4×10^0	5.9×10^{-1}
0-40	3	1.4×10^0	3.3×10^0	1.7×10^0	2.1×10^0	1.0×10^0	6.8×10^{-1}	4.5×10^{-1}
0-60	1	9.4×10^{-1}	9.4×10^{-1}	9.4×10^{-1}	9.4×10^{-1}	0.0×10^0	-6.6×10^{-2}	0.0×10^0

NOTE: Specific activity is decay corrected to 1994.

N^a stands for number of individual samples.

Appendix D

Maps of the Islands



Rongelap Atoll, Yugu Is.

Cocoanut

F-5

Pandanus

○

Vegetation

●

Coconut Crab

●

Nov. 1989



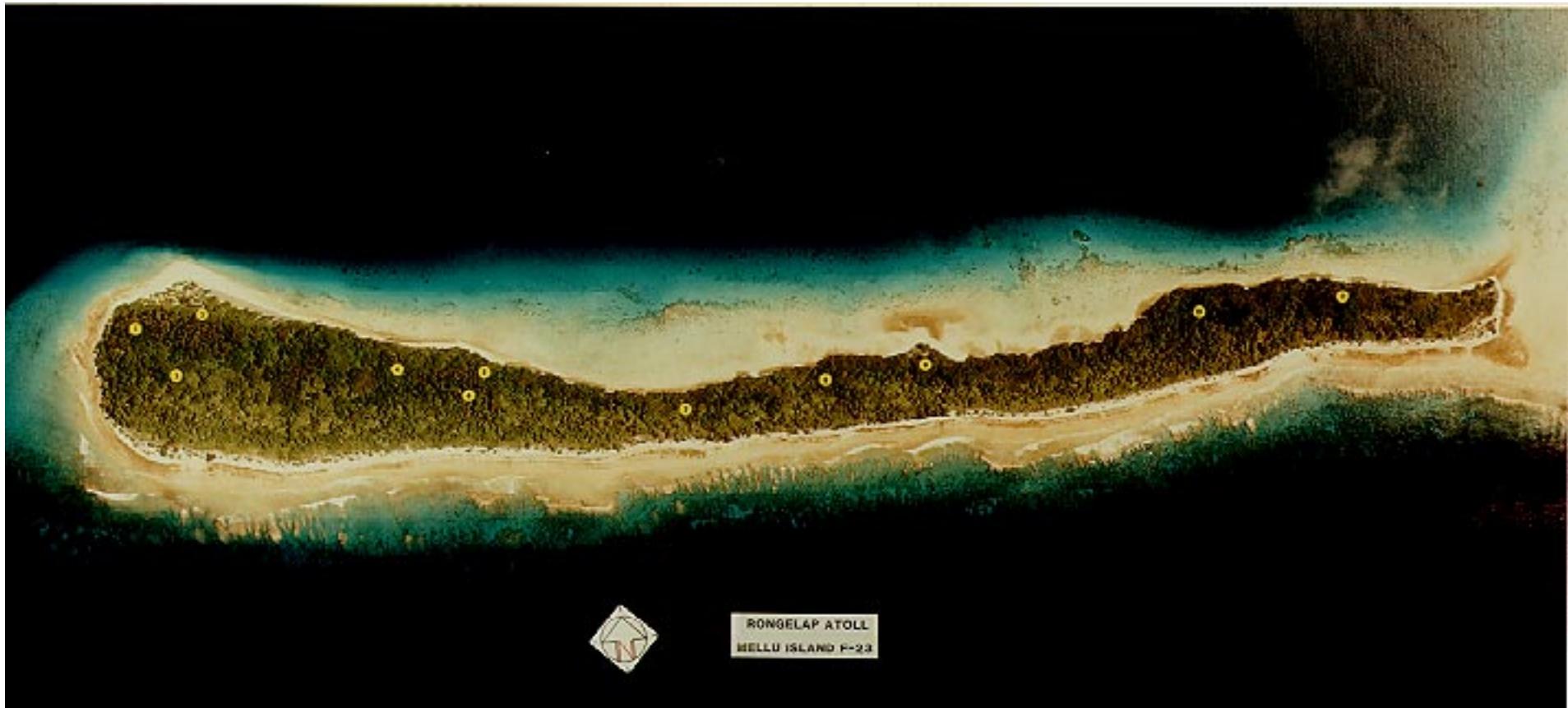


Rongelap Atoll
Loniufal Island F-7





Rongelap Atoll
Kabelle Island F-13



RONGELAP ATOLL
MELLI ISLAND P-23